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ABSTRACT

The Structure of Intellect Learning Abilities (SOI-LA) Test was administered to 244 Navajo students (second through eighth grades) at Leupp Boarding School in northern Arizona to determine behavioral characteristics in regard to intellectual and creative ability. Comparison of SOI-LA test scores of Leupp students with norm scores revealed 54 of the 244 students scored in the gifted range in 3 or more subtests (memory scores were highest consistently for all 24 subtests). Teachers completed the Scale for Rating Behavioral Characteristics of Superior Students (SRBCSS) for 100 of 244 students in order to correlate behavioral characteristics to creative thinking and intellectual abilities. Comparison of SOI-LA and SRBCSS results revealed low positive to negative correlation with behavioral characteristics and a greater number of significant correlations for any intellectual ability with all behaviors. Grade level made a difference in intellectual and creative ability (second grade had twice the number of significant correlations than other grades). Sex also showed a difference in number and type of correlations (girls had 79% more correlations between intellectual or creative abilities and behavioral characteristics than boys). One of four recommendations made is for development of a comprehensive training program for teachers to identify gifted Navajos. (ERB)

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BEHAVIORAL CHARACTERISTICS OF GIFTED NAVAJO STUDENTS AS CORRELATED WITH INTELLECTUAL ABILITY AND CREATIVITY

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ABSTRACT

The purpose of this research was to determine behavioral characteristics of elementary-level Navajo students with regard to their intellectual and creative ability. The primary emphasis was to determine both a behavioral profile and an intellectual profile of the Navajo child. The research examined creativity and intellectual ability as measured by the Structure of Intellect Learning Abilities (SOI-LA) Test. Behavioral characteristics were assessed by the Renzulli-Hartman Scale For Rating Characteristics of Superior Students (SRBCSS).

BEHAVIORAL CHARACTERISTICS OF GIFTED NAVAJO STUDENTS AS CORRELATED WITH INTELLECTUAL ABILITY AND CREATIVITY

There is a need for proper identification and subsequent education of the gifted students in America. Researchers have found that significant numbers of unserved gifted students drop out of school, have had low college attendance, are bored, disturbed, and distressed (Feldman, 1979, Kraver, 1979, Martinson, 1974). This problem is particularly acute among our culturally-different gifted youth. The traditional means of testing for giftedness in our public schools is through intelligence tests. However, this means of measuring giftedness is limited and disadvantageous to culturally-different students.

Little research has been conducted on gifted Native American children. Hynd and Garcia (1979) have pointed out that, typically, research directed to culturally-different populations has centered on Blacks and Mexican-Americans. One of the few studies on intellectual assessment of gifted Native-American students was developed by Baldwin (1978). In this research, Baldwin tested Navajo students for giftedness utilizing the Structure of Intellect Learning Abilities Test (SOI-LA) by Meeker and Meeker (1975).

In light of the above, the following study was developed and culminated in Spring, 1981. The purpose of this research was to determine behavioral characteristics of elementary-level Navajo students with regard to their intellectual and creative ability. The primary emphasis was to determine both a behavioral profile and an intellectual profile of the

Navajo child. A randomly selected cross section of ability levels was examined in order that behavioral characteristics of the gifted students could be isolated and distinguished from behavioral characteristics of lower ability students. The research examined creativity and intellectual ability as measured by the Structure of Intellect-Learning Abilities (SOI-LA) Test.

The behavioral characteristics were measured by teachers on the Ren ulli-Hartman Scale for Rating Behavioral Characteristics of Superior Students (SRNCSS). The SRBCSS is a rating scale which requires teachers to evaluate student behavioral characteristics in the areas of Learning, Motivation, Creativity, and Leadership. The results of the SRBCSS were correlated with the results of the SOI-LA to determine the behavioral and intellectual profile of the gifted students.

The study this analyzed six areas in relation to the above-stated purposes: 1. identification of gifted Navajo students; 2. test score comparisons; 3. creative thinking ability; 4. intellectual ability and behavioral characteristic correlations; 5. grade level differences; and 6. sex differences.

Methods

The SOI-LA was administered to 244 students at the Leupp Boarding School in northern Arizona. From the results of the 244 tests a sample of one hundred students was selected. The students in the school who scored in the gifted range according to the reported test norms were selected. Also, two males and two females were selected from each grade, two through eight, for inclusion in the study by a stratified random method to ensure that all levels of ability would be included for the sample.

Once the sample of one hundred students had been selected, the teachers of these students completed the Renzulli-Hartman Scale for Rating Behavioral Characteristics of Superior Students (SRBCSS) for each student. These teachers participated in several sessions directed by the investigator which were intended to assist the teachers with objective evaluation of gifted abilities among the Navajo students. The data from the SRBCSS and the Structure of Intellect Learning Abilities (SOI-LA) Test were processed and analyzed through the Statistical Package for the Social Sciences (SPSS) computer program. The analysis consisted of frequency tabulation, central tendency, and the Pearson Product Moment Correlation of the data.

Test Score Comparisons

1. How does the performance in areas of intellectual and creative ability of elementary level Navajo students compare with the normed scores reported on the SOI-LA?

The 244 students in grades two through eight at the Leupp School scored above the mean in forty areas or approximately twenty-five percent of the total number of subtests. The greatest number of subtests above the norm means were in the Memory and Divergent Production mental operations. Memory scores were the highest consistently for all twenty-four subtests on the SOI-LA. Divergent Production subtests were above the norm mean for grades two, three, six, and eight. Cognition and Evaluation subtest scores were above the norm mean for the lower grades; however, the upper grades six through eight scored below the mean in those areas.

The Leupp students' subtest scores most often occurred above the norm mean in the Figural and Symbolic content areas. The second grade

students scored the most number of subtests above the norm mean. Each succeeding grade scored fewer subtests above the norm except the eighth grade. The boys scored more subtests above the norm mean than the girls.

The Leupp students scored at least one grade level above the norm on twenty-three subtests or fourteen percent of the total. The gifted range on the SOI-LA is marked by the ninety-fourth percentile, i.e., more than three grade levels above the reported norms. There were 524 scores within the gifted range on twenty-three of twenty-four subtests for the Leupp students. Of the 244 students who were tested, fifty-four scored in the gifted range in three or more subtests. Generally, each grade showed a decline in the number of students who scored at the gifted level in three or more subtests.

Creative Thinking Ability

2. What is the correlation of behavioral characteristics to creative thinking ability of elementary level Navajo students as measured on the Structure of Intellect Learning Abilities (SOI-LA) Test?

Creative thinking was measured by the SOI-LA with three tests of Divergent Production. These test scores were correlated with the results of the Scale for Rating Behavioral Characteristics of Superior Students (SRBCSS). The correlations were for the sample of one hundred students at the Leupp School. Generally, Divergent Production ability showed low positive to negative correlations with behavioral characteristics. The highest correlations with Divergent Production came with Learning characteristics.

Three grades showed negative correlations between Creativity behavior and Divergent Production ability. The Divergent Production of Figural

Units (DFU) subtest did not correlate significantly with any behavior. Only the Divergent Production of Semantic Units (DMU) and Divergent Production of Symbolic Relations (DSR) subtests showed significant correlations with observed behavior.

Intellectual Ability and Behavioral Characteristic Correlations

3. What is the correlation of behavioral characteristics to the intellectual abilities of Cognition, Memory, Evaluation, and Convergent Production of the elementary-level Navajo students as measured on the Structure of Intellect Learning Abilities (SOI-LA) Test?

The SOI-LA subtest scores for each of the mental operations (Cognition, Memory, Evalaution, and Convergent Production) were correlated with the results of the Scale for Rating Behavioral Characteristics of Superior Students (SRBCSS). These correlations were for the sample of one hundred students at the Leupp School.

Cognition ability showed the greatest number of significant correlations for any intellectual ability with all behaviors, Learning, Motivation, Creativity, and Leadership. Learning characteristics correlated significantly with cognition more often than the other behaviors; and the semantic content cognition subtests correlated significantly with behaviors more frequently than other content areas.

Memory ability correlated significantly with behavior for the second grade pupils and showed low positive to negative correlation for other grades. Memory ability subtests correlated significantly with Leadership more often than other behaviors.

Evaluation correlated with all behaviors with similar levels of significance. All four subtests in Evaluation showed significant correlations with behavior. Leadership characteristics correlated significantly with Evaluation more often than other behaviors.

Convergent Production showed both a higher level of significance and a greater incidence of significant correlations than any other intellectual ability Cognition. Convergent Production significantly correlated with each of the behaviors. Learning and Motivational characteristics correlated significantly with Convergent Production more often than other behaviors.

Symbolic content areas correlated significantly with behavior nearly twice as often as Semantic content areas and nine times as often as Figural content areas. Learning and Motivational characteristics correlated most frequently with intellectual ability across all grade levels.

Grade Level Differences

4. Are there differences among behavioral characteristics correlated with creativity and intellectual ability according to the grade of the Navajo student?

The grade level did make a difference for nearly every intellectual and creative ability. The second grade had the greatest number of significant correlations with more than twice as many as most grades. The fifth and eighth grades were next in the number of significant correlations between intellectual ability and behavioral characteristics. The other grades showed fewer significant correlations and showed a proportionately larger number of negative correlations between intellectual ability and behavior.

Grades three, four, and six showed no significant correlations with any general intellectual ability. The second grade showed significant correlations between behavior and every intellectual ability.

All grades showed a similar distribution of significant correlations for behavioral characteristics. Learning characteristics had the greatest number of significant correlations with intellectual ability and the other three behaviors had a smaller number of significant correlations. Semantic and Symbolic content areas significantly correlated most frequently with behavior for all grades with very few significant correlations for Figural ability. All grades showed significance between behavior and Cognition subtests.

Sex Differences

5. Are there differences among behavioral characteristics correlated with creativity and intellectual ability depending on the sex of the Navajo student?

As with grade level, the data analysis provided evidence that there was a difference in the number and type of correlations for the boys and girls. The sample included fifty girls and fifty boys.

The girls showed seventy-nine percent more significant correlations between intellectual or creative abilities and behavioral characteristics than the boys. There were no examples where the boys and girls in the same grade showed significant correlations for the same general intellectual ability and the same behavior. The girls showed the greatest number of significant correlations with Cognition and Memory abilities. The girls showed the greatest number of significant correlations with Cognition corre-

lates with Divergent Production ability and with Leadership characteristics. The boys showed the lowest number of significant correlations with Evaluation ability and with Creative behavior. The boys showed the greatest number of significant correlations with Cognition subtests and behaviors.

Discussion

The scores on the Structure of Intellect Learning Abilities (SOI-LA) Test for the Navajo students were generally below the norm. There were low scores in tests of Cognition, Convergent Production, and Semantic ability. A problem for further research would be to examine the SOI-LA for possible cultural loadings on questions to determine if Navajo students answer the question differently than an Anglo student might. There is also a need to determine if Navajo students are deficient in some intellectual areas or if the SOI-LA fails to measure accurately the Navajo students' ability. In addition, none of the SOI-LA tests are concerned with the mental operation of behavior as described in Guilford's Structure of Intellect model. If tests of this realm of behavior were developed, the Navajo students might demonstrate high level ability.

The scores for the Navajo students showed a general decline throughout the grades with respect to the reported norms. This decline may have occurred due to the testing of different students in each grade. If the same students were tested in succeeding grades, their scores might show a similar decrease. A study designed to determine the cause of this decrease in scores might identify educational measures to correct the problem.

The Navajo students scored below the norm on all subtests on the SOI-LA in Semantic content, except Divergent Production of Semantic Units

(DMU). The Navajo should have extensive opportunity to use the written word and to experiment with expression of ideas and words. The Navajo students' greatest intellectual strengths were in the mental operations of Memory and Divergent Production. The effect of development of Semantic ability through strengths of Memory and Divergent Production presents a problem for further research.

By using the Renzulli-Hartman Scale for Rating Behavioral Characteristics of Superior Students (SRBCSS) teachers were able to identify high level "left" brain abilities of Cognition, Convergent Production, Semantic and Symbolic within the Navajo students. However, teachers seldom identified "right" brain abilities of Creativity and Figural. The teachers also had difficulty predicting high level Memory ability. These abilities (Creativity, Memory, and Figural) appear to be strengths of the Navajo. The SRBCSS may not include behavioral characteristics which correlate significantly with these abilities. In addition, the teachers may be more capable of objectively evaluating typical "left" brain functions. If the SRBCSS were changed to include observable characteristics of students who score high level Creativity, Memory, and Figural ability, teachers might be more accurate in perceiving the intellectual strengths of the Navajo. In addition, teachers should realize the apparent "right" brain dominance of the Navajo, and these skills should be expanded and encouraged through creative experiences, affective education, and artistic activities.

The teachers at the Leupp School assessed the high-level intellectual and creative ability of the girls eighty percent more often than that of the boys. Apparently the behavioral characteristics of gifted boys are different from the characteristics of the girls. As with identification of the "right"

brain functions, the SRBCSS may not emphasize the characteristics of gifted boys as they are of those of girls. Individual characteristics of teachers may be a factor in their ability to identify accurately high-level intellectual and creative activity of Navajo students regardless of the grade of the student. Through a comprehensive training program, the teachers might become more accurate in their identification of areas where they showed low correlations in this research. A study to examine the effectiveness of teacher training in identification of gifted Navajos would provide information to assist teachers in this process.

Although there were some problems with the Scale for Rating Behavioral Characteristics of Superior Students (SRBCSS), it did significantly correlate with many intellectual abilities. The SRBCSS did not identify every child that demonstrated gifted-level intellectual or creative behavior; thus, this instrument probably should not be used in isolation to identify gifted ability among the Navajo students. However, if the teachers are given an opportunity to complete the SRBCSS for students they believe to possess gifted intellectual or creative abilities, this SRBCSS rating may help in identification of giftedness among the Navajo students. If the scores on the SRBCSS in Leadership are high for the students, their Evaluation ability is likely to be high. With modification of the SRBCSS to include the characteristics of gifted Navajo students, which seem to be omitted on the SRBCSS, the instrument would allow teachers to evaluate more accurately the gifted-level abilities of Navajo students. A follow-up of this research could be to observe the beha ior of previously identified gifted Navajo students and add to or modify the SRBCSS to include these.

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